subject when picking up the subject so as to focus the photography lens of the camera on the subject.

Replace the paragraph starting at page 2, line 24 with:

However, when the image processing device having the artificial retinal LSI disclosed in Japanese Patent Application KOKAI Publication No. 8-178637 is used in a camera, a CPU, which operates at high speed to execute complicated processing, and/or a correlation calculation unit must be mounted in the camera. These units are expensive, and the number of component parts of the distance-measuring device, and hence the size of the distance-measuring device, inevitably increase because of these units.

Replace the paragraph starting at page 3, line 7 with:

Moreover, in the above distance-measuring device, two images are input using two cameras having respective artificial retinal LSIs, and the distance to a subject is measured. That is, distance measurement is executed, on the basis of the correlation of the two images using the principle of stereo. Accordingly, the device is large in size and expensive.

Replace the paragraph starting at page 3, line 14 with:

This large distance-measuring device can be installed in, for example, a single lens reflex camera, but not in a small and inexpensive machine such as a compact camera.

Replace the paragraph starting at page 3, line 18 with:

In different to-be-photographed scenes, if the camera is to photograph different subjects, it should have the ability to focus on different portions of the subjects. For example, if the main subject is a person, the camera should focus on an upper portion, such as the face, of the person. If, on the other hand, the main subject is scenery or a building, the camera should focus on its center.

a5

Replace the paragraph starting at page 3, line 26 with:

Usually, however, a distance-measuring point for a shortest distance to an area in which the main subject seems to exist is selected for focusing.

a6

Replace the paragraph starting at page 5, line 2 with:

Pattern detection for detecting such a distinctive point does not require such accurate detection of a distribution of reflected light as does distance measurement. More easy detection provides a sufficient result. Therefore, if the pattern detection is executed at the same speed as distance measurement, it is a waste of time.

a7

Replace the paragraph starting at page 5, line 25 with:

According to an aspect of the invention, there is provided a distance-measuring device comprising:
two optical systems having a parallax therebetween;

a8

an image pick up element formed on a semiconductor substrate for picking up two images formed by the optical systems; image processing means formed on the semiconductor substrate for processing an image output from the image pick up element; main subject detecting means for detecting a main subject on the basis of an output from the image processing means; and distance-measuring means for executing a distance measurement operation, based on the output of the image processing means, on the main subject detected by the main subject detecting means.

Replace the paragraph starting at page 13, line 17 with:

This camera comprises: a control section 1 formed of a microcomputer for controlling components parts mentioned below and executing various operations; an AF area sensor 2 used for distance measurement; a focus lens driving section 3 for driving a focus lens 4; a focus lens encoder 5 for generating a pulse signal corresponding to the movement amount of the focus lens 4; a photometric section 7 for processing a photoelectric signal generated by a photometric photoelectric element 6, and outputting a photometry result; a shutter driving section 8 for driving a shutter (not shown); a strobe circuit section 10 for causing a strobe emission unit 9 to emit light as assisting light during photography or as AF assisting light during distance measurement; a viewfinder display section 11 for superimposing information related to the invention on a viewfinder screen including a photography screen; a camera display section 12 provided on the case of the camera and formed of, for example, an LCD, for displaying the number of film portions to be exposed, or a photography

mode; a display circuit section 13 for controlling the viewfinder display section 11 and the camera display section 12; a zoom lens driving section 15 for driving a zoom lens 14 to execute zooming (changes in focal distance) and outputting focal distance data to the control section 1; a film driving section 16 for executing auto-loading of a film, winding the film by one exposure, or rewinding the film; and a camera orientation detecting section 21 for detecting the position of the camera (a landscape-size picture taking position, a portrait-size picture taking position).

Replace the paragraph starting at page 14, line 22 with:

The control section 1 is connected to a first release switch (1RSW) 17 and a second release switch (2RSW) 18. The control section 1 executes distance calculation when the 1RSW 17 has been closed, and executes an exposure operation and a film winding operation when the 2RSW 18 has been closed.

Replace the paragraph starting at page 15, line 13 with:

The AF area sensor 2 has a photoelectric element group 2a in which a plurality of pixel units including, for example, photodiodes, are two-dimensionally arranged in rows and columns in its photography area; a light (e.g., photo reception) signal processing circuit 2b and a fixed light eliminating section 2c. In this structure, the control section 1 controls an integration operation, thereby picking up a subject image formed by a distance-measuring optical system, described later, controlling a

pixel amplifying circuit for each pixel so as to convert, into a voltage, a charge generated by the photoelectric element group 2a when light has entered it, and to amplify it and convert it into sensor data. The fixed light eliminating section 2c eliminates a fixed light component from the sensor data, and outputs the resultant data to the control section 1.

Q11 cont

Replace the paragraph starting at page 16, line 18 with:

Subsequently, it is determined whether or not the 1RSW 17 has been closed (step S2). If it is determined that the 1RSW 17 is in the OFF state (if the answer at the step S2 is NO), it is determined whether or not another switch (other than the 1RSW 17 and the 2RSW 18) has been operated (step S3).

Q12

Replace the paragraph starting at page 16, line 24 with:

If another switch is operated (if the answer at the step S3 is YES), processing corresponding to the operated switch is executed (for example, if a ZUSW 19 or a DSW 20 is operated, the zoom lens 14 is raised or lowered) (step S4), and the program returns to the step S2. On the other hand, if another switch is not operated (if the answer at the step S3 is NO), the program directly returns to the step S2, thereby keeping the camera in a standby state..

Q13

Replace the paragraph starting at page 17, line 6 with:

If it is determined at the step S2 that the 1RSW 17 has been closed (the answer is YES), distance measurement (for auto focusing) is executed (step S5), and photometry/exposure operations are executed (step S6).

Replace the paragraph starting at page 17, line 10 with:

After that, it is determined whether or not the 2RSW 18 has been closed (step S7). If it is determined that the 2RSW 18 has been closed (if the answer at the step S7 is YES), a shutter operation is executed to expose a portion of a film (step S8). After exposing the film portion, the film is wound by one exposure (step S9), followed by the program returning to the step S2 to thereby keep the camera in the standby state. However, if it is determined that the 2RSW 18 is not closed (if the answer at the step S7 is NO), the program directly returns to the step S2.

Replace the paragraph starting at page 25, line 7 with:

In light of this, an area used for distance measurement is limited in accordance with the focal distance data (zoom data) of a photographic optical system. The EEPROM 1e pre-stores distance-measuring area position correction data corresponding to changes in focal distance, which is read and developed in the RAM 1c when the control section 1 is initialized.

Replace the paragraph starting at page 29, line 18 with:

Subsequently, a threshold level is set on the basis of a threshold level setting histogram (step S32). Various methods can be used for this setting. For example, if a mode method is used, the brightness that appears at a minimum frequency is set at the threshold level (See FIG. 11A, for example). Binarization processing is then performed based on the threshold level (step S33).

Replace the paragraph starting at page 35, line 4 with:

FIG. 14A illustrates a photography screen for picking up a person. FIG. 14B illustrates outline data obtained after binarization processing, FIG. 14C low resolution data, and FIG. 14D low resolution outline data.

Replace the paragraph starting at page 40, line 3 with:

To avoid the above, the AF area sensor 2 is made to execute the fixed-light-eliminating-integration processing while making the strobe unit 9 execute pre-emission several times. Since a larger amount of light is reflected from a subject when the subject is closer to the camera, an output corresponding to a subject located further from the camera can be removed if integration control is executed on a peak amount of reflected light while executing pre-emission. As a result, outline data as shown in FIG. 18B can be obtained.

Replace the paragraph starting at page 42, line 14 with:

More specifically, the AF area sensor 2 is made to execute the fixed-light-eliminating-integration processing while making the strobe unit 9 execute pre-emission several times. Since a larger amount of light is reflected from a subject when the subject is closer to the camera, an output corresponding to a subject located further from the camera can be removed if integration control is executed on a peak amount of reflected light while executing pre-emission. As a result, Sy projection data (Sx projection data) as shown in FIG. 20 can be obtained, thereby removing the influence of the background and realizing more accurate distance measurement with a small time lag.

Replace the paragraph starting at page 55, line 19 with:

In the eighth embodiment et seq., which will be described now and later, the sensor section of the distance-measuring device is formed of a line sensor consisting of pixels (sensors) as photoelectric elements that are arranged in line, or an area sensor consisting of pixels (sensors) that are arranged in two-dimensions, for example, in a matrix. Further, any one of the line sensor and the area sensor is referred to as a sensor array.

Replace the paragraph starting at page 59, line 18 with:

As shown in FIG. 32B, the distance-measuring area of 62a of a line sensor is a central slim area in the photography screen 72 of the camera. On the other hand, an

area sensor is identical to a structure in which line sensors are arranged in two-dimensions, and accordingly the distance-measuring area can be widened to an area 73 substantially the same as the photography screen 72.

Replace the paragraph starting at page 59, line 26 with:

When picking up a scene as shown in FIG. 32A in the prior art, two-step exposure, a so-called focus lock operation, is executed. Specifically, at first, a main subject is contained in a distance-measuring area (a central portion of the screen), and a release button is half-pushed to execute distance measurement. After that, the camera is shifted to a position in which a to-be-photographed scene can be contained in the screen, with the release button half-pushed, thereby further pushing the release button to execute exposure.

Replace the paragraph starting at page 60, line 9 with:

This operation, however, requires time and effort for a pre-operation before image pick up, and may loose good timing for photography in the case of picking up a moving subject. If an area sensor is used to widen a distance-measurement-enabled area, a distance to a main subject situated even in an end portion of the photography screen as shown in FIG. 32A can be measured.

Replace the paragraph starting at page 60, line 22 with:

Where the number of distance-measuring points is extremely increased, sequential execution of distance

measurement for the distance-measuring points requires much more time than in the case of the focus lock operation. This is very disadvantageous especially because the area sensor is more expensive than the line sensor.

Replace the paragraph starting at page 61, line 25 with:

This is similar to that described with reference to FIGS. 29 - 31D. If distance measurement is executed at a distance-measuring point based on the determined position as shown in FIG. 33C, an auto-focusing (AF) technique for instantly focusing the camera on a main subject is realized, irrespective of on which portion of the photography screen the main subject exists.

Replace the paragraph starting at page 63, line 2 with:

The area sensors 86a and 86b are connected to a fixed-light eliminating circuit 90, where a DC light signal that constantly enters the sensors through the photography screen is eliminated under the control of the computing control section 88, thereby outputting only a signal indicating pulse light (auxiliary light) from the strobe unit 84.

Replace the paragraph starting at page 64, line 17 with:

As shown in FIG. 36A, each area sensor 86a or 86b is formed of line sensors arranged in rows in the photography screen. For facilitating the explanation of pattern determination, only line sensors of three rows 91a, 91b and 91c are selected. In the case of a scene as shown in

FIG. 36B, no portion of the person exists in a position corresponding to the line sensor 91a, while the face and the body of the person are situated in positions corresponding to the line sensors 91b and 91c, respectively. Accordingly, output results as shown in FIG. 36C are obtained corresponding to the respective line sensors.

Replace the paragraph starting at page 66, line 26 with:

Similarly, if $\Delta P > P_0$ at the step S200 (i.e. if the answer is YES), the program proceeds to steps S207 - S212, where it is determined in which row 91a, 91b or 91c the values $\underline{x}$ forming ⏃ are included, thereby storing the determination results in the memory of the CPU 88. For example, if the ⏃-shape is detected at the row 91a, the x-coordinate of the leading edge of the ⏃-shape is expressed as x_{191a}, and that of the trailing edge is expressed as x_{291a}.

Replace the paragraph starting at page 67, line 12 with:

After that, it is determined whether or not the value $\underline{y}$ indicates the row 91a (step S213). If it indicates the row 91a (i.e. if the answer is YES), the value $\underline{y}$ is changed to indicate the row 91b (step S215), and the program returns to the step S192. However, if the value $\underline{y}$ does not indicate the row 91a (i.e. if the answer at the step S213 is NO), it is determined whether or not the value $\underline{y}$ indicates the row 91b (step S214). If the value $\underline{y}$ indicates the row 91b (if the answer is YES), the value $\underline{y}$

is changed to indicate the row 91c (step S216), followed by the program returning to the step S192. Thus, the ⊔-shaped distribution is determined.

Replace the paragraph starting at page 68, line 11 with:

Similarly, it is confirmed that the x-coordinate x_{291b} or x_{291c} of a trailing edge is lower than that x_{191b} or x_{191c} of a leading edge (step S220 or S223). If the answer is NO, the width of the ⊔-shape is set at 0 (step S221 or S224), whereas if the answer is YES, the width Δx_{91b} or Δx_{91c} of the ⊔-shape is calculated as the difference between the x-coordinates of the leading and trailing edges (step S222 or S225).

Replace the paragraph starting at page 73, line 11 with:

However, a lot of time is required to accurately detect each sensor output. Moreover, when detecting the position of a main subject from a wide area in the photography screen, if each sensor is made to capture an image signal at the same high accuracy and resolution as in the case of distance measurement, great increases in the time lag will be inevitable. In light of this, it is necessary to more reduce the image signal processing period of each sensor when a wider area is to be scanned.

In accordance with 37 C.F.R. § 1.121(b)(2)(iii) separate sheets with the replacement paragraphs, marked up to show all changes relative to the previous version of the paragraphs, is filed herewith.